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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/076,141 | 02/15/2002 | Wayne E. Conrad | 88630.213CIP | 9852 |

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EXAMINER

CHORBAJI, MONZER R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1744

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/076,141 | Applicant(s) CONRAD ET AL. | |
| | Examiner MONZER R CHORBAJI | Art Unit 1744 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/22/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This general action is in response to the application filing date of 02/15/2002

Claim Objections

1. Claim 8 is objected to because of the following informalities:

In claim 8, line 1; applicant recites the phrase "the chamber of claim 8".

Claim 8 is assumed to depend on claim 6 for initial examination purposes.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

In claim 21, line 2; applicant recites the term "a truncated triangular cross-section". However, the specification does not teach such a limitation.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

4. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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5. Claims 1-16 and 21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 and 18 of U.S. Patent No. 6,447,733. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following:

The concepts of claim 1 in application number 10/076,141 are in claims 1 and 16 of U.S. Patent No. 6,447,733. Claim 16 of U.S. Patent No. 6,447,733, teaches that the first angle is 22 degrees, which falls within the range of claim 1 of application number 10/076,141.

The concepts of claims 2-16 and 21 in application number 10/076,141 are in claims 1(b), 2-3, 6-8, 10, 9, 4-5, 11-15 and 18 of U.S. Patent No. 6,447,733.

6. Claims 17-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16-17 of U.S. Patent No. 6,447,733 in view of Hadamovsky et al (U.S.P.N. 4,118,313).

With respect to claims 17-20 in application number 10/076,141, claims 16-17 of U.S. Patent No. 6,447,733 disclose that the first and second angles are equal to 22 degrees only and fails to teach that the first angle is between 22.2 and 27.5 degrees and the second angle is between 22.5 and 27.5 degrees. However, the Hadamovsky reference, which is in the art of fluid contact, teaches various baffle angle inclination values in examples 1-2 and 4-5. As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify inclination degree values of the baffles in the

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claims of the U.S. Patent No. 6,447,733 as taught by the Hadamovsky reference depending on the structural height of the device (col.13, lines 44-47).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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10. Claims 1-2, 4-6, 12 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turk (U.S.P.N. 4,029,578) in view of Hadamovsky et al (U.S.P.N. 4,118,313).

With respect to claim 1, The Turk reference discloses a fluid contact chamber including the following: a container (10) for a first fluid (14) having first and second sides, inlet for a second fluid (11), a means for directing the flow of the first fluid (12) such that at least one eddy is formed (ozone gas is sparged into the second fluid which is flowing countercurrent to water that intrinsically results in the formation of eddies, col.3, lines 51-59, the ozone bubbles flow along the lower surface of baffle 12), the means for directing includes first baffle extending from the first side toward the second side (12), forming a first gap between the first baffle and the second side and an outlet for passage of the first and second fluid (water containing ozone is discharged through outlet 21 as mentioned in col.4, lines 3-5). However, the Turk reference fails to teach a first baffle inclining upwardly at a first angle between 10 and 45 degrees. The Hadamovsky reference, which is in the art of fluid contact, teaches a first baffle (for example, figure 3, 7) inclining upwardly at a first angle between 10 and 45 degrees (examples 1-2 and 4-5). As result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the baffles of the Turk reference by inclining them at 30 degrees as taught by the Hadamovsky reference in order to keep the height of the contact chamber small (col.13, lines 44-47).

With respect to claims 2, 5 and 21, the Hadamovsky reference teaches an upwardly inclining second baffle at a second angle (figure 3, unlabeled second baffle) such that the surface is intrinsically modified to promote precipitation (figure 4a, 4 and col.8, lines 46-49) and the inclined baffles (7) intrinsically forms a third gap that defines a truncated triangular cross-section.

With respect to claims 17-20, the Hadamovsky reference teaches that the inclination angel for the baffles in examples 1-2 and 4-5 can be 40, or 30 or 50 degrees. However, Since the Hadamovsky reference teaches that the degree of inclination of the baffles depends on the height of the chamber; modification of the inclination angel of the baffles is a matter of routine experimentation.

With respect to claims 4, 6, 12 and 15-16, the Turk reference teaches the following: a catalyst is disposed in the container (col.3, lines 51-53), means for chemical modification (the use of catalyst), first baffle extends at least 80% of the width of the chamber (figure 1, 12), first fluid is introduced in a counter flow to the second fluid (10, 14 and 11) and the directing means defines a serpentine flow path through the chamber (ozone bubbles flows in a serpentine flow path around baffles 12 in 10).

11. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turk (U.S.P.N. 4,029,578) in view of Hadamovsky et al (U.S.P.N. 4,118,313) and further in view of Lund et al (U.S.P.N. 4,028,246).

With respect to claims 7-9, both the Turk reference and the Hadamovsky reference fa to teach the use of ultrasonic and ultraviolet emitters; however, the Lund reference, which is the art of liquid purification, teaches the use of ultrasonic and ultraviolet emitters (34 and 33)

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As result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of the Turk reference by adding ultrasonic and ultraviolet emitters as taught by the Lund reference since the combination of such emitters result in a synergistic effect for better fluid treatment (col.2, lines 5-7).

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turk (U.S.P.N. 4,029,578) in view of Hadamovsky et al (U.S.P.N. 4,118,313) and further in view of Burgher (U.S.P.N. 5,091,118).

With respect to claim 3, both the Turk reference and the Hadamovsky reference fail to teach the use of a venturi tube; however, the Burgher reference, which is in the art of spargin gases into liquids, teaches the use of venturi (30). As result, it would have been obvious to o having ordinary skill in the art at the time the invention was made to modify the device of the Turk reference by adding venturi means as taught by the Burgher reference in order to maximize the concentration of the gas in the liquid (col.1, lines 61-64).

13. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turk (U.S.P.N. 4,029,578) in view of Hadamovsky et al (U.S.P.N. 4,118,313) and further in view o Burgher (U.S.P.N. 5,091,118) and Lund et al (U.S.P.N. 4,028,246).

With respect to claims 13-14, the Turk reference, the Hadamovsky reference and the Burgher reference all fail to teach a removable insert from the chamber; however, the Lund reference, which is in the art of liquid purification, teaches the use of a removable baffles (20 and col.4, lines 14-20) with the inserts being 24 for supporting removable baffles 20. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the stationary baffles of the Turk reference by substituting them with

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removable ones since such a substitution is a matter of choice of design as evidenced by the Lund reference.

14. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turk (U.S.P.N. 4,029,578) in view of Hadamovsky et al (U.S.P.N. 4,118,313) and further in view of Schenck (U.S.P.N. 5,753,106).

With respect to claim 10, both the Turk reference and the Hadamovsky reference fail teach the use of titanium dioxide; however, the Schenck reference, which is in the art of water treatment, teaches the use of titanium dioxide (col.17, line 42). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of the Turk reference by including titanium dioxide as taught by the Schenck reference in order to improve the photopurification process by counterbalancing the effects of the contaminants absorption that result in restricting photochemical reactions (col.17, lines 39-49).

With respect to claim 11, the Turk reference teaches that the inlet is at a lower portion of the container (14).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Cochran reference (U.S.P.N. 3,045,984-IDS) teaches the formation of eddies in a liquid contact chamber.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

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17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT J WARDEN can be reached on (571) 272-1281.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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02/20/2005

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